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Substitute for Form 1449A/PTO		Complete if Known		
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary.)		Application Number	10/612,542	
		Filing Date	July 1, 2003	
		First Named Inventor	Yen-Kuang Chen	
		Art Unit	293	
		Examiner Name	Malzahn, David H	
Sheet		of	Attorney Docket Number	42P15766

U.S. PATENT DOCUMENTS

Exam. Initials	Cite No. ¹	Document Number Number-Kind Code (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	AA	US-6,816,961	11/9/2004	Rice et al.	
	AB	US-2003/0131030	7/10/2003	Sebot et al.	
	AC	US-6,745,319	6/1/2004	Balmer et al.	
	AD	US- 2005/0188182	8/25/2005	Hoyle et al.	
	AE	US-2002/0002666	1/3/2002	Dulong et al.	
	AF	US-2003/0123748	7/3/2003	Sebot et al.	
	AG	US-2001/0016902	8/23/2001	Abdallah et al.	
	AH	US-6,211,892	4/3/2001	Huff et al.	
	AI	US-6,115,812	9/5/2000	Abdallah et al.	
	AJ	US-2003/0231711	12/18/2003	Zhang et al.	
	AK	US-2002/0172287	11/21/2002	King	
	AL	US-2002/0159529	10/31/2002	Wang et al.	
	AM	US-6,430,684	8/6/02	Bosshart	
	AN	US-2004/0098556	5/20/04	Buxton et al.	
	AO	US-2004/0098567	5/20/04	Hansen et al.	
	AP	US-2004/0205323	10/14/04	Hansen et al.	
	AQ	US-2005/0100312	5/19/05	Chen et al.	
	AR	US-			
	AS	US-			
	AT	US-			

FOREIGN PATENT DOCUMENTS

Exam. Initials	Cite No. ¹	Foreign Patent Document Country Code ³ -Number ⁴ -KindCode ⁵	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
	AU	EP 0130 380	01/09/1985	IBM		
	AV	EP 0363 176	04/11/1990	IBM		
	AW	WO 03/038601	05/02/03	Intel Corporation		
	AX					
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	BB					
	BC					
	BD					
	BE					

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³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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Page	First Named Inventor: Yen-Kuang Chen	Examiner: Malzahn, David H.	
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OTHER ART - NO PATENT LITERATURE DOCUMENTS			
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		AVARO, Olivier, et al., <i>MPEG-4 Systems Overview and Architecture</i> , woody.imag.fr/MPEG4/syssite/syspub/docs/tutorial/, 28/05/98, pp. 1-71 plus Yahoo site ref.	
		BIERLING, M., <i>Displacement Estimation by Hierarchical Blockmatching</i> , SPIE, Vol. 1001, Visual Communications and Image Processing, May 1998, pp. 942-951.	
		CHAN, Y.L and W.C. Siu, <i>Adaptive Multiple-Candidate Hierarchical Search for Block Matching Algorithm</i> , IEE Electronics Letters, Vol. 31, No. 19, Sept. 14, 1995, pp. 1637-1639.	
		CHAN, Yui-Lam and Wan-Chi Siu, <i>New Adaptive Pixel Decimation for Block Motion Vector Estimation</i> , IEEE Transactions on Circuits and Systems on Video Technology, Vol. 6, No. 1, Feb. 1996, pp. 113-118.	
		CHEN, Liang-Gee, Wai-Ting Chen, Yeu-Shen Jehng Tzi-Dar Chuieh, <i>An Efficient Parallel Motion Estimation Algorithm for Digital Image Processing</i> , IEEE Transactions on Circuits and Systems on Video Technology, Vol. 1, No. 4, Dec. 1991, pp. 378-384.	
		CHENG, K.W., S.C. Chan, <i>Fast Block Matching Algorithms for Motion Estimation</i> , ICASSP96, 1996, pp. 2318ff.	
		CORBAL, Jesus, et al., <i>DLP+TLP Processors for the Next Generation of Media Workloads</i> , 0-7695-1019-1/01, IEEE, 2001, pp. 219-228.	
		DAY, Neil, Ed., <i>Introduction to MPEG-7 (v.3.0)</i> , International Organization for Standardization, ISO/IEC JTC1/SC29/WG11, Coding of Moving Pictures and Audio, #N4032, March 2001, pp. 1-10.	
		DUFAUX, Frederic, et al., <i>Efficient, Robust, and Fast Global Motion Estimation for Video Coding</i> , 1057-7149/00, IEEE, 2000, pp. 497-501.	
		ECKART, Stefan, Chad Fogg, <i>ISO/IEC MPEG-2 Software Video Codec</i> , SPIE Vol. 2419, Digital Video Compression: Algorithms and Technologies, 1995, San Jose, CA, 15 pages.	
		EDIRISINGHE, E.A., et al., <i>Shape Adaptive Padding for MPEG-4</i> , 0098 3063/00, IEEE, 2000, pp. 514-520.	
		FENG, J., Lo, K. T. Mehrpour, H. Karbowiak, A.E, <i>Adaptive Block-Matching Motion Estimation Algorithm for Video Coding</i> , IEE Electronics Letters, Vol. 31, No. 18, 1995, pp. 1542-1543.	
		FURHT, Botho, Joshua Greenberg, Raymond Westwater, <i>Motion Estimation Algorithm for Video Compression</i> , Kluwer Academic Publishers, Boston, 1997, pp. cover-vi, 11, 49-95.	
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		GHANBARI, M., <i>The Cross-Search Algorithm for Motion Estimation</i> , IEEE Transactions on Communications, Vol. 38, No.7, Jul. 1990, pp. 950-953.	
		HE, Zhongli, M.L. Liou, <i>A High Performance Fast Search Algorithm for Block Matching Motion Estimation</i> , IEEE Transactions on Circuits and Systems on Video Technology, Vol. 7, No. 5, Oct. 1997, pp. 826-828.	
		HE, Zhong-Li, M.L. Liou, <i>Design of Fast Motion Estimation Algorithm based on Hardware Consideration</i> , IEEE Transactions on Circuits and Systems on Video Technology, Vol.7, No.5, Oct. 1997, pp. 819-823.	
		HEISING, G., et al., <i>MoMuSys: MPEG-4 Version 2 Video Reference Software Package</i> , AC098/HHI/WP5.1/DS/P/049/B1, 1998, Abstract and pp. 1-8.	
		INTEL CORPORATION, <i>Block-Matching in Motion Estimation Algorithms Using Streaming SIMD Extensions 2 (SSE2)</i> , Vers. 2.0 9/22/00, Order No. 248605-001, pp. 1-13, A-1, A-2.	
		INTERNATIONAL ORGANISATION FOR STANDARDISATION, <i>Optimization Model, Version 2.0</i> , ISO/IEC JTC1/SC29/WG11, Coding of Moving Pictures and Audio, #N3675, October 2000, 12 pp.	
		INTERNATIONAL ORGANISATION FOR STANDARDISATION, <i>New MPEG-4 Profiles Under Consideration</i> , ISO/IEC JTC1/SC29/WG11, Coding of Moving Pictures and Audio, #N3932, January 2001, pp. 1-35.	
		JAIN, J., A. Jain, <i>Displacement Measurement and its Application in Interframe Image Coding</i> , IEEE Transactions on Communications, Vol. 29, No. 12, Dec. 1981, pp. 1799-1808.	
		JU, John C.-H., et al., <i>A Fast Rate-Optimized Motion Estimation Algorithm for Low-Bit-Rate Video Coding</i> , 1051-8215/99, IEEE, 1999, pp. 994-1002.	
		JUNG, Hae Mook, Duch Dong Hwang Coong Soo Park, Han Soo Kim, <i>An Annular Search Algorithm for Efficient Motion Estimation</i> , International Picture Coding Symposium, PCS96, 1996, pp. 171-174.	
		KAPPAGANTULA, S., K.R. Rao, <i>Motion Compensated Interframe Image Prediction</i> , IEEE Transactions on Communications, 33(9), Sept. 1985, pp. 1011-1015.	
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		KIM, Joon-Seek, Rae-Hong Park, <i>A Fast Feature-Based Block Matching Algorithm Using Integral Projections</i> , IEEE Journal on Selected areas in communications, Vol.10, No.5, June 1992, pp. 968-971.	
		KIM, Michelle, Ed., <i>MPEG-4 Systems</i> , International Organization for Standardization, ISO/IEC JTC1/SC29/WG11, Coding of Moving Pictures and Audio, #N3383, June 2000, pp. 1-19.	
		KNEIP, Johannes, et al., <i>Applying and Implementing the MPEG-4 Multimedia Standard</i> , 0272-1732/99, IEEE, 1999, pp. 64-74.	
		KNEIP, J. (Johannes), et al., <i>The MPEG-4 Video Coding Standard—a VLSI Point of View</i> , IEEE Workshop on Signal Processing Systems (SIPS98), 8-10 Oct. 1998, pp. 43-52, A-1, A-2.	
		KOGA, J., et al., <i>Motion Compensated Interframe Coding for Video Conferencing</i> , Proceedings of the National Telecommunications Conference, 1981, pp. G5.3.1- 5.3.3.	
		KOENEN, Rob, Ed., <i>Overview of the MPEG-4 Standard</i> , International Organization for Standardization, ISO/IEC JTC1/SC29/WG11, Coding of Moving Pictures and Audio, #N4030, March 2001, pp. 1-69.	
		KUHN, P., <i>Algorithms, Complexity Analysis and VLSI Architectures for MPEG-4 Motion Estimation</i> , 1999 Kluwer Academic Publishers, Boston, pp. cover-vi, 15, 17-59, 107-109, 119-121, 147-167, and 189-204.	
		KUHN, P., Stechele W., <i>Complexity Analysis of the Emerging MPEG-4 Standard as a Basis for VLSI Implementation</i> , vol. SPIE 3309 Visual Communications and Image Processing, San Jose, Jan.1998, pp. 498-509.	
		LEE, Liang-Wei, Jhing-Fa Wang, Jau- Yien Lee, Jung-Dar Shie, <i>Dynamic Search-Window Adjustment and Interlaced Search Block-Matching Algorithm</i> , IEEE Transactions on circuits and systems for video technology, Vol. 3, No. 1, Feb. 1993, pp. 85-87.	
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		LEE, W., Y. Kim, R.J. Gove, C.J. Read, <i>Media Station 5000: Integrating Video and Audio</i> , IEEE Multimedia, Vol. 1, No. 4, 1994, pp. 50-61.	
		LEE, Xiaobing, Ya-Qin Zhang, <i>A Fast Hierarchical Motion-Compensation Scheme for Video Coding Using Block-Feature Matching</i> , IEEE Transactions on Circuits and Systems for Video Technology, Vol. 6, No. 6, Dec. 1996, pp. 627-635.	
		LENGWEHASATIT, Krisda, et al., <i>A Novel Computationally Scalable Algorithm for Motion Estimation</i> , SPIE 3309 VCIP Visual Communications and Image processing, San Jose, CA, Jan. 1998, pp. 66-79.	
		LI, R., B. Zeng, M.L. Liu, <i>A New Three-Step Search Algorithm for Block Motion Estimation</i> , IEEE Transactions on Circuits and Systems on Video Technology, Vol. 4, No. 4, Aug. 1994, pp. 438-442.	
		LI, W., E. Salari, <i>Successive Elimination Algorithm for Motion Estimation</i> , IEEE Trans. Image Processing, Vol. 4, Jan. 1995, pp. 105-107.	
		LIANG, Jie, et al., <i>Region-Based Video Coding with Embedded Zero-Trees</i> , 1068-0314/97, IEEE, 1997, p. 449.	
		LIU, B., A. Zaccarin, <i>New Fast Algorithms for the Estimation of Block Motion Vectors</i> , IEEE Transactions on Circuits and Systems on Video Technology, Vol.3, No.2, April 1993, pp. 148-157.	
		LIU, Lurng-Kuo, Ephraim Feig, <i>A Block-Based Gradient Descent Search Algorithm for Block-Based Motion Estimation in Video Coding</i> , IEEE Transactions on Circuits and Systems on Video Technology, Vol. 6, No. 4, Aug. 1996, pp. 419-422.	
		MO, Hyeon-Cheol, et al., <i>A High-Speed Pattern Decoder in MPEG-4 Padding Block Hardware Accelerator</i> , 0-7803-6685-9/01, IEEE, 2001, pp. II-197 - II-200.	
		MOSCHETTI, F., et al., <i>About Macroblock Subsampling for Motion Estimation on IA-64</i> , Proc. of 2001 IEEE Int'l. Conf. on Multimedia and Expo (ICME 2001), Tokyo, Japan, August 2001, 4 pp.	
		MOSCHETTI, F., et al., <i>A Fast Block Matching for SIMD Processors Using Subsampling</i> , IEEE #0-7803-5482-6/99, pp. IV-321 - IV-324. 2000.	
		NAM, Kwon Moon, Joon-Seek Kim, Rae-Hong Park, Young Serk Shim, <i>A Fast Hierarchical Motion Vector Estimation Algorithm Using Mean Pyramid</i> , IEEE Transactions on Circuits and Systems on Video Technology, Vol. 5, No. 4, Aug. 1995, pp. 344-351.	
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		NETRAVALI, A., B. Haskell, <i>Digital Pictures Representation and Compression</i> , New York, Plenum, 1988, pp. cover-xv, 334-340, 537-542, and 354-355.	
		PIRSCH, Peter, Nicolas Demassieux, Winfried Gehrke, <i>VLSI Architectures for Video Compression - A Survey</i> , Proceedings of the IEEE, Vol. 83, No. 2, Feb. 1995, pp. 220-246.	
		PO, Lai-Man, Wing-Chung Ma. <i>A Novel Four-Step Search Algorithm for Fast Blockmatching</i> , IEEE Transactions on Circuits and Systems on Video Technology, Vol. 6, No. 3, Jun. 1996, pp. 313-317.	
		PURI, A., H.M. Hang, D.L. Schilling, <i>An Efficient Blockmatching Algorithm for Motion Compensated Coding</i> , Proc. IEEE ICASSP, 1987, pp. 2.4.1-25.4.4.	
		RAGSDALE, Gary L., et al, <i>Relationships of Popular Transmission Characteristics to Perceived Quality for Digital Video Over ATM</i> , National Communications System, Technical Information Bulletin 99-2, January 1999, 64 pp.	
		RAMKISHOR, K., et al., <i>Real Time Implementation of MPEG-4 Video Decoder on ARM7TDMI</i> , Proc. of 2001 Int'l. Symposium on Intelligent Multimedia, Video and Speech Processing, May 2-4, 2001, pp. 522-526.	
		SHI, Y.Q., X. Xia, <i>A Thresholding Multiresolution Block Matching Algorithm</i> , IEEE Transactions on Circuits and Systems on Video Technology, Vol. 7, No. 2, April 1997, pp. 437-440.	
		SIKORA, Thomas, <i>MPEG Digital Video Coding Standards</i> , Preprint from Digital Consumer Electronics Handbook, 1 st Ed., McGraw-Hill Book Co., Ch. 9, pp. 1-43.	
		SIKORA, Thomas, <i>MPEG-1 and MPEG-2 Digital Video Coding Standards</i> , Preprint from Digital Consumer Electronics Handbook, 1 st Ed., McGraw-Hill Book Co., pp. 1-43.	
		SIKORA, Thomas, <i>The Structure of the MPEG-4 Video Coding Algorithm</i> , Preprint from Digital Consumer Electronics Handbook, 1 st Ed., McGraw-Hill Book Co., pp. 1-16.	
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		SONG, Byung Cheol, Jong Beom Ra, <i>A Hierarchical Block Matching Algorithm Using Partial Distortion Criteria</i> , SPIE 3309 VCIP Visual Communications and Image Processing, 1998, San Jose, CA, pp. 88-95.	
		SRINIVASAN, Ram and K.R. Rao, <i>Predictive Coding Based on Efficient Motion Estimation</i> , IEEE Transactions on Circuits and Systems on Video Technology, Vol. Com-33, No. 8, Aug. 1985, pp. 888-896.	
		STOLBERG, H.-J., et al., <i>The M-Pire MPEG-4 Codec DSP and Its Macroblock Engine</i> , 0-7803-548206/99, IEEE, 2000, pp. II-192-II-195.	
		THAM, Jo Yew, et al., <i>Transactions Letters: A Novel Unrestricted Center-Biased Diamond Search Algorithm for Block Motion Estimation</i> , IEEE, 1051-8215/98, 1998, pp. 369-377.	
		van der SCHAAAR, M., et al., <i>Near-Lossless Complexity-Scalable Embedded Compression Algorithm for Cost Reduction in DTV Receivers</i> , 0098 3063/00, IEEE, 2000, pp. 923-933.	
		WANG, Chung-Neng, et al., <i>Improved MPEG-4 Visual Texture Coding Using Double Transform Coding</i> , 0-7803-6685-9/01, IEEE, 2001, pp. V-227 - V-230.	
		WESTERINK, P. H., et al., <i>Two-Pass MPEG02 Variable-Bit-Rate Encoding</i> , IBM J. Res. Develop, Vol. 43, No. 4, July 1999, pp. 471-488.	
		WITTENBURG, J.P., et al., <i>HiPAR-DSP: A Parallel VLIW RISC Processor for Real Time Image Processing Applications</i> , (0-7803-4229-1/97) IEEE, 1997, pp. 155-162.	
		XU, Jie-Bin, Lai-man Po, and Chok-Kwan Cheung, <i>A New Prediction Model Search Algorithm for Fast Block Motion Estimation</i> , IEEE Int. Conf. Image Processing, ICIP97, Santa Barbara, 1997. pp. 60-613.	
		YU, Fengqi and Alan N. Willson, Jr., <i>A Flexible Hardware-Oriented Fast Algorithm for Motion Estimation</i> , ICASSP97, 1997, pp. 2681ff.	
		ZHU, Shan, Kai-Kuang Ma, <i>A New Diamond Search Algorithm for Fast Block Matching</i> , IEEE Transactions on Circuits and Systems on Video Technology, Vol. 9, No. 2, Feb. 2000, pp. 287-290.	
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		First Named Inventor: Yen-Kuang Chen	Examiner: Malzahn, David H.
		Filing Date: July 1, 2003	Art Unit: 2193
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		DIEFENDORFF, K., et al., "Altivec Extension to PowerPC Accelerates Media Processing," IEEE, #0272-1732/00, 2000, pp. 85-95.	
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Application Number	10/612,542
Filing Date	July 1, 2003
First Named Inventor	Yen-Kuang Chen
Art Unit	2193
Examiner Name	Malzahn, David H.
Attorney Docket Number	42P15766

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	1	5019968		1991-05-28	Wang, et al.	
	2	5321810		1994-06-14	Case, et al.	
	3	5497497		2008-01-23	Miller, et al.	
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2	20020112147	2002-08-15	Chennupaty, Srinivas; et al.
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	1	PHILIPS ELECTRONICS, "TriMedia TM1000 Preliminary Data Book," 1997, 16 pgs	<input type="checkbox"/>
	2	"MIPS Digital Media Extension," Set Architecture Specification, Web Site - mips.com/MDMXspec.ps, October 21, 1997. 8 pgs	<input type="checkbox"/>
	3	HEWLET PACKARD, "64-bit and Multimedia Extensions in the PA-RISC 2.0 Architecture," Microprocessors Precision Architecture, 1997, 18 pgs	<input type="checkbox"/>
	4	KAWAKAMI, Y., ET AL., "A Single-Chip Digital Signal Processor for Voiceband Applications," IEEE, 1980 International Solid-State Circuits Conference, pp. 40-41, 1980.	<input type="checkbox"/>
	5	SUN MICROSYSTEMS, INC., "UltraSPARC Multimedia Capabilities On-Chip Support for Real-Time Video and Advanced Graphics," SPARC Technology Business, September 1994, 8 pgs	<input type="checkbox"/>

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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6	CASE, B., "Philips Hopes to Displace DSPs with VLIW, TriMedia Processors Aimed at Future Multimedia Embedded Apps," Microprocessor Report, December 1994, pp. 12-18	<input type="checkbox"/>
7	Gwennap, L., "New PA-RISC Processor Decodes MPEG Video, H's PA-7100LC Uses New Instructions to Eliminate Decoder Chip," Microprocessor Report, January, 1994, pp. 16-17	<input type="checkbox"/>
8	TEXAS INSTRUMENTS, "TMS320C2X User's Guide," 1993, pp 3:2-3:11; 3:28-3:34; 4:1-4:22; 4:41; 4:103; 4:119-J;120; 4:122; 4:150-4:151	<input type="checkbox"/>
9	INTEL CORPORATION, "i860 TM Microprocessor Family Programmer's Reference Manual," 1992, Chapters 1, 3, 8 and 11	<input type="checkbox"/>
10	LEE, R. B., "Accelerating Multimedia with Enhanced Microprocessors," IEEE Micro, April 1995, pp. 22-32	<input type="checkbox"/>
11	INTEL CORPORATION, "Pentium Processor's User's Manual, vol. 3; Architecture and Programming Manual," 1993, Chapters 1, 3, 4, 6, 8, and 18	<input type="checkbox"/>
12	MARGULIS, N., "i860 Microprocessor Architecture," McGraw Hill, Inc., 1990, Chapters 6, 7, 8, 10, and 11	<input type="checkbox"/>
13	INTEL CORPORATION, "Intel i750, i860 TM, i960 Processors and Related Products, 1993, pp. 1-3	<input type="checkbox"/>
14	MOTOROLA, INC., "Motorola MC88110 Second Generation RISC Microprocessor User's Manual," 1991, 600 pages	<input type="checkbox"/>
15	MOTOROLA, INC., "Errata to MC88110 Second Generation RISC Microprocessor User's Manual," 1992, pp. 1-11	<input type="checkbox"/>
16	MOTOROLA, INC., "MC88110 Programmer's Reference Guide, 1992, pp. 1-4	<input type="checkbox"/>

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2193

Examiner Name

Malzahn, David H.

Attorney Docket Number

42P15766

17	SHIPNES, J., "Graphics Processing with the 88110 RISC Microprocessor," Motorola, Inc. IEEE, No. 0-8186-26455-0/92, 1992, pp. 169-174	<input type="checkbox"/>
18	ADVANCED MICRO DEVICES, INC., "AMD-3D Technology Manual," February 1998, pp. 1-58	<input type="checkbox"/>
19	HANSEN, C., "Architecture of a Broadband Mediaprocessor," Proceedings of Compcon, IEEE, 1996, pp. 334-340	<input type="checkbox"/>
20	LEVINTHAL, ET AL., "Chap—A SIMD Graphics Processor," Computer Graphics Project, ACM, vol. 18, No. 3, July 1984, pp. 77-81	<input type="checkbox"/>
21	LEVINTHAL, ET AL., "Parallel Computers for Graphics Applications," Proceedings: Second International Conference on Architectural Support for Programming Languages and Operating Systems, (ASPLOS II), IEEE, 1987, pp. 193-198	<input type="checkbox"/>
22	WANG, ET AL., "A Processor Architecture for 3D Graphics Calculations," Computer Motion, Inc., Goleta, CA, 23 pgs	<input type="checkbox"/>

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Application Number	10/612,542
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First Named Inventor	Yen-Kuang Chen
Art Unit	293
Examiner Name	Malzahn, David H.
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	1	3711692		1973-01-16	BATCHER		
	2	3723715		1973-03-27	CHEN et al.		
	3	4139899		1979-02-13	TULPULE et al.		
	4	4161784		1979-07-17	CUSHING et al		
	5	4393468		1983-07-12	NEW		
	6	4418383		1983-11-29	DOYLE et al.		
	7	4490786		1984-12-25	NAKATANI		
	8	4498177		1985-02-05	LARSON		

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Art Unit	2193
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9	4707800	1987-11-17	MONTRONE et al.
10	4771379	1988-09-13	ANDO et al.
11	4903228	1990-02-20	GREGOIRE et al.
12	4989168	1991-01-29	KURODA et al.
13	5081698	1992-01-14	KOHN
14	5095457	1992-03-10	JEONG
15	5168571	1992-12-01	HOOVER et al.
16	5187679	1993-02-16	VASSILIADIS et al.
17	5268995	1993-12-07	DIEFENDORFF et al.
18	5390135	1995-02-14	LEE et al.
19	5408670	1995-04-18	DAVIES

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First Named Inventor

Yen-Kuang Chen

Art Unit

2193

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Malzahn David H.

Attorney Docket Number

42P15766

20	5423010	1995-06-06	MIZUKAMI
21	5426783	1995-06-20	NORRIE et al.
22	5465374	1995-11-07	DINKJIAN et al.
23	5487159	1996-01-23	BYERS et al.
24	5524256	1996-06-04	TURKOWSKI
25	5579253	1996-11-26	LEE et al.
26	5594437	1997-01-14	O'MALLEY
27	5625374	1997-04-29	TURKOWSKI
28	5680161	1997-10-21	LEHMAN et al.
29	5781457	1998-07-14	COHEN et al.
30	5819117	1998-10-06	HANSEN

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31	5822619	1998-10-13	SIDWELL	
32	5838984	1998-11-17	NGUYEN et al.	
33	5909572	1999-06-01	THAYER et al.	
34	5933650	1999-08-03	van HOOK et al.	
35	6041404	2000-03-21	ROUSSEL et al.	
36	6115812	2000-09-05	ABDALLAH et al.	
37	6192467	2001-02-20	ABDALLAH et al.	
38	6288723	2001-09-11	HUFF et al.	
39	6484255	2002-11-19	DULONG	
40	6546480	2003-04-08	MANDAVILLI et al.	

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